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Clean Air Act Section 114 Survey Questions For Chemical Manufacturers

(chemical manufacturing process units, elastomer product process units, polyether polyol manufacturing process units, and other affected facilities or sources subject to certain SOCMI related NESHAP and/or NSPS)

TABLE OF CONTENTS

[TOC \o "1-3" \h \z \u]

1.0 Facility Information

1. Facility name.

2. Is the facility directly subject to:[1]
    a. 40 CFR part 60, subpart III? (Yes/No)
    b. 40 CFR part 60, subpart NNN? (Yes/No)
    c. 40 CFR part 60, subpart RRR? (Yes/No)
    d. 40 CFR part 60, subpart VV? (Yes/No)
    e. 40 CFR part 60, subpart VVa? (Yes/No)
    f. 40 CFR part 63, subparts F, G, H, or I (i.e., the Hazardous Organic NESHAP)? (Yes/No). If Yes, please specify which subpart(s) apply (F, G, H, I)
        i. 40 CFR part 63, subpart F (Yes/No)
        ii. 40 CFR part 63, subpart G (Yes/No)
        iii. 40 CFR part 63, subpart H (Yes/No)
        iv. 40 CFR part 63, subpart I (Yes/No)
    g. 40 CFR part 63, subpart U? (Yes/No)
    h. 40 CFR part 63, subpart PPP? (Yes/No)
3. Does your facility comply with the Consolidated Air Rule (40 CFR part 65 rules) as an option for any of the rules listed above? (Yes/No). If Yes, please specify which rules.
    a. 40 CFR part 65, subpart A (Yes/No)
    b. 40 CFR part 65, subpart C (Yes/No)
    c. 40 CFR part 65, subpart D (Yes/No)
    d. 40 CFR part 65, subpart E (Yes/No)
    e. 40 CFR part 65, subpart F (Yes/No)
    f. 40 CFR part 65, subpart G (Yes/No)
4. Is the facility a major source of HAP? (Yes/No)
5. Did the facility recently reclassify (or plan to reclassify in the future) as a minor source of HAP as a result of the rule "Reclassification of Major Sources as Area Sources Under Section 112 of the Clean Air Act"? (Yes, recently reclassified; Yes, plan to reclassify; No)
6. Facility address (physical location).
7. Facility location.
    a. Latitude coordinates (decimal degrees to five decimal places).
    b. Longitude coordinates (decimal degrees to five decimal places).
8. Facility mailing address (if different than physical address).
9. Dun and Bradstreet number for your facility.
10. Name of legal owner of facility.
    a. Physical address (physical location) of legal owner of facility.
    b. Mailing address (if different than physical address) of legal owner of facility.

[1] For purposes of this question, the facility is "directly" subject to the rule if it meets the applicability requirements of the rule. The facility is not "directly" subject to a rule just because a different rule (for which the facility is subject to according to applicability) references portions of the rule. In other words, the facility is not directly subject to Rule-B if the facility complies with a portion of Rule-B just because Rule-A requires the facility to comply with that portion of Rule-B; instead, in this example, the facility is directly subject to Rule-A.

11. Name of legal operator of facility, if different from legal owner.
    a. Physical address (physical location) of legal operator of facility.
    b. Mailing address (if different than physical address) of legal operator of facility.
12. Name and title of contact(s) able to answer questions about the completed survey.
    a. Contact(s) telephone number.
    b. Contact(s) e-mail address.
13. Are you part of a larger corporate entity or joint venture? (Yes/No)
    a. If the facility is operated under a joint partnership, provide the following for each partner:
        i. Partner name.
        ii. Percent ownership.
        iii. Number of employees (approximate number of employees including all subsidiaries, branches, and related establishments owned).
        iv. Provide the 2017 annual revenue (dollars) for each partner.
    b. If the facility is operated under a larger corporate entity, provide the following:
        i. Name of parent company.
        ii. Total number of employees for the parent company (approximate number of employees including all subsidiaries, branches, and related establishments owned).
        iii. Provide the 2017 annual revenue (dollars) for the parent company.
        iv. Select the statement that best applies:
            1. Facility is fully independent of parent company.
            2. Parent company provides some financial support.
            3. Facility and parent company are fully integrated.
14. Submit a copy of the current air permit(s) under which the facility is operating.
15. Submit a copy of any consent decree(s) and/or other specific air-related agreement(s) under which the facility is operating, if applicable.

Commented [JR1]: Maybe CBI but I'm unsure. if the company is privately owned?

2.0 Emission Points and Control Devices Related to Process Units and Other SOCMI Operations

2.1 Process Units

1. Provide a unique identifier for each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit at your facility. Where possible, use the identifier in the facility's air permit. **THE IDS USED MUST BE USED THROUGHOUT THIS SURVEY.**
2. Identify whether the chemical manufacturing process unit, elastomer product process unit, or polyether polyol manufacturing process unit is considered one or more of the following according to Federal regulations (select all that apply):
    a. "Chemical Manufacturing Process Unit" subject to 40 CFR part 63, subparts F through H and defined by 40 CFR 63.101.
    b. "Elastomer Product Process Unit" subject to 40 CFR part 63, subpart U and defined by 40 CFR 63.482.
    c. "Polyether Polyol Manufacturing Process Unit" subject to 40 CFR part 63, subpart PPP and defined by 40 CFR 63.1423.
    d. Other (specify).
3. For each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, identify the number of:
    a. "Air Oxidation Reactors" that are:
        i. Affected facilities subject to 40 CFR part 60, subpart III and defined by 40 CFR 60.611;
        ii. Not subject to 40 CFR part 60, subpart III.
    b. "Distillation Units" that are:
        i. Affected facilities subject to 40 CFR part 60, subpart NNN and defined by 40 CFR 60.661;
        ii. Not subject to 40 CFR part 60, subpart NNN.
    c. "Reactor Processes" that are:
        i. Affected facilities subject to 40 CFR part 60, subpart RRR and defined by 40 CFR 60.701;
        ii. Not subject to 40 CFR part 60, subpart RRR.
4. For each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, identify:
    a. When construction commenced (Month/Day/Year).
    b. If applicable, when modified or reconstructed (Month/Day/Year).

2.2 Air Pollution Control Devices

1. Provide a unique identifier for each air pollution control device associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit at your facility. Where possible, use the identifier in the facility's air permit. **THE IDS USED MUST BE USED THROUGHOUT THIS SURVEY.**

2. For each air pollution control device, provide the following:
    a. Type of control device.
        i. Recuperative thermal oxidizer/incinerator.
        ii. Regenerative thermal oxidizer/incinerator
        iii. Thermal oxidizer/incinerator.
        iv. Catalytic oxidizer/incinerator.
        v. Boiler.
        vi. Process heater.
        vii. Flare.
        viii. Scrubber (specify type).
        ix. Condenser.
        x. Carbon adsorber.
        xi. Cyclone (or multiple cyclones).
        xii. Electrostatic precipitator.
        xiii. Fabric filter.
        xiv. Injection (specify type).
        xv. Selective catalytic reduction (SCR).
        xvi. Selective non-catalytic reduction (SNCR).
        xvii. Other (provide a brief description).
    b. Year installed.
    c. Does it control HAP emissions from a (check all that apply):
        i. Process vent(s), including but not limited to, process vents from air oxidation reactors, distillation units, and/or reactor processes;
        ii. Storage vessel(s)
        iii. Transfer rack(s)
        iv. Wastewater stream(s)
        v. Heat exchange system(s)
        vi. Equipment leak(s)
        vii. Pressure relief device(s)
        viii. Other (specify)
3. Is the control device operation at all times, including during startup and shutdown events? (Yes/No) If no, describe when the control device is activated (or deactivated) during startup (shutdown).
4. Is there any expected change in control device efficiency during startup and/or shutdown events? (Yes/No) If yes, explain the expected change in efficiency.
5. Is the vent gas flow rate to the control device typically higher, lower, or unchanged during startup and/or shutdown events?

2.3 Emission Points, Process Flow Diagrams, and Plot Plans

1. Provide a unique identifier for each emission point associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit at your facility. Where possible, use the identifier in the facility's air permit. **THE IDS USED MUST BE USED THROUGHOUT THIS SURVEY.** [Note: the response to this question is considered complete when the response to question 2 of this sub-section is completed.]

2. Using the template provided to you, create a crosswalk between emission point IDs, process unit IDs, and control device IDs used in this survey. Create a new row for each combination, as necessary. **IMPORTANT: In addition to the emission point IDs, process unit IDs, and control device IDs used in this survey, the crosswalk must also include the emission point IDs used in the 2017 National Emissions Inventory (your facility's 2017 National Emissions Inventory is provided as a supplement to this survey) regardless of whether the survey emission point IDs are the same or different than those IDs used in the inventory. This portion of the crosswalk is intended to help EPA connect responses to this survey to the specific emissions reported in the inventory.** As part of this crosswalk, indicate whether any CEMS is installed on an emission point stack:
    a. CO CEMS.
    b. NO_X CEMS.
    c. O_2 CEMS.
    d. PM CEMS.
    e. SO_2 CEMS.
    f. THC CEMS.
    g. Other (specify).
3. Provide a complete process flow diagram (PFD) (or set of complete PFDs, if more appropriate) illustrating the connectivity (from feedstocks to products) between each emission point, process unit, and control device. Emission sources provided in the list below must be included on the PFD. Use a unique identifier for each emission source. Where possible, use the identifier in the facility's air permit. **ALL ID'S DISPLAYED ON THE PFD MUST MATCH THE IDS USED THROUGHOUT THIS SURVEY**. The PFDs should clearly identify all emission point IDs, process unit IDs, and if applicable, the control device (including control device IDs) to which the emission source is routed.[2]
    a. Air oxidation reactors.
    b. Distillation units.
    c. Reactor processes.
    d. Process vents.
    e. Atmospheric vents not considered to be a process vent under any rule mentioned in Section 1.0 of this survey.
    f. Storage vessels.
    g. Transfer racks.
    h. On-site wastewater collection and treatment systems.
    i. Discharges of wastewater to a collection system.
    j. Heat exchange systems (i.e., cooling towers, not individual heat exchangers).
4. Provide a copy of an existing plot plan for each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit at your facility. Separate plot plans must be provided for each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit (if your facility contains multiple). The plot plant should clearly indicate:

[2] Equipment that provides the same unit operation (e.g., distillation units) may be grouped on the PFD if, and only if, the IDs for each piece of equipment represented by the group are included on the PFD, and all emission points from the grouped equipment are clearly identified.

a. The unique ID used for each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, consistent with the ID provided in the PFD.
b. Each unique emission point ID indicating the location at which emissions from the chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit are released to the atmosphere; if controlled, this would be the stack associated with the control device.

5. Review the 2017 National Emissions Inventory for each emission point.
   a.
6. Provide all historical stack testing and sampling and analysis data test reports with available supporting documentation for all HAP, VOC, and/or THC stack tests conducted from 2016 through 2020 for any emission point associated with an air oxidation reactor, distillation unit, reactor process, chemical manufacturing process unit, elastomer product process unit, or polyether polyol manufacturing process unit at the facility.

2.4 Production

Provide the following for each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit:

1. Primary product or primary intermediate product for years 2017, 2018, 2019, and 2020.
2. Total capacity and actual production of the primary product or primary intermediate product for years 2017, 2018, 2019, and 2020 (tons per year). *{Capacity information should be based on the highest expected production of the primary product or primary intermediate product.}*
3. Provide the year that the chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit began production of the primary product or primary intermediate product and estimate the remaining useful economic life of the process unit.

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3.0 Gas Streams

3.1 Process Vents (as defined by certain SOCMI related NESHAP and/or NSPS)

For each process vent at each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. A unique identifier for each process vent. Where possible, use the identifier in the facility's air permit.
2. The unique identifier of the chemical manufacturing process unit, elastomer product process unit, or polyether polyol manufacturing process unit associated with the process vent. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]

3. The emission point ID(s) associated with the process vent. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
4. Provide the total resource effectiveness (TRE) index value of each process vent based on the applicable Federal regulation. In a separate file, submit calculations (or assumptions, if applicable) that support each TRE value.
5. Select the definition that best describes each process vent: (select all that apply – e.g., NSPS vent stream may also be also subject to a NESHAP)
    a. Vent stream (as defined in 40 CFR 60.611).
    b. Vent stream (as defined in 40 CFR 60.661).
    c. Vent stream (as defined in 40 CFR 60.701).
    d. Group 1 batch process vent (as defined in 40 CFR 63.101 and 40 CFR 63.111).
    e. Group 2 batch process vent (as defined in 40 CFR 63.101 and 40 CFR 63.111).
    f. Group 1 process vent (as defined in 40 CFR 63.101 and 40 CFR 63.111).
    g. Group 2 process vent (as defined in 40 CFR 63.101 and 40 CFR 63.111).
    h. Group 1 batch front-end process vent (as defined in 40 CFR 63.482).
    i. Group 2 batch front-end process vent (as defined in 40 CFR 63.482).
    j. Aggregate batch vent stream (as defined in 40 CFR 63.482) that contains one or more Group 1 batch front-end process vents.
    k. Aggregate batch vent stream (as defined in 40 CFR 63.482) that contains only Group 2 batch front-end process vents.
    l. Group 1 continuous front-end process vent (as defined in 40 CFR 63.482).
    m. Group 2 continuous front-end process vent (as defined in 40 CFR 63.482).
    n. Group 1 combination of batch process vents (as defined in 40 CFR 63.1423).
    o. Group 2 combination of batch process vents (as defined in 40 CFR 63.1423).
    p. Group 1 continuous process vent (as defined in 40 CFR 63.1423).
    q. Group 2 continuous process vent (as defined in 40 CFR 63.1423).
    r. Batch process vent (as defined in 40 CFR 63.11502).
    s. Continuous process vent (as defined in 40 CFR 63.11502).
    t. Metal HAP process vent (as defined in 40 CFR 63.11502).
    u. Other (specify).
6. Select the halogenated characteristic that best describes each process vent: (select all that apply – e.g., NSPS vent stream may also be subject to a NESHAP)
    a. Halogenated vent stream (as defined in 40 CFR 60.611).
    b. Halogenated vent stream (as defined in 40 CFR 60.661).
    c. Halogenated vent stream (as defined in 40 CFR 60.701).
    d. Halogenated vent stream (as defined in 40 CFR 63.111).
    e. Halogenated batch front-end process vent (as defined in 40 CFR 63.482).
    f. Halogenated continuous front-end process vent (as defined in 40 CFR 63.482).
    g. Halogenated aggregate batch vent stream (as defined in 40 CFR 63.482).
    h. Halogenated vent stream (as defined in 40 CFR 63.11502).
    i. None of the above.
7. Characterize the process vent as:
    a. Routine.
    b. Non-routine (e.g., malfunctions, emergencies).

8. Provide the specific citation(s) of the emissions standard(s) in the Federal regulation(s) that apply to each process vent. To help the responder understand how to answer this question, some examples of specific citations are included below:
    a. A vent stream (as defined in 40 CFR 60.611) may comply with the emissions standards specified in 40 CFR 60.612(a). [i.e., reduces emissions of TOC (minus methane and ethane) by 98 weight-percent, or to a TOC (minus methane and ethane) concentration of 20 ppmv on a dry basis corrected to 3 percent oxygen, whichever is less stringent]
    b. A Group 1 process vent (as defined in 40 CFR 63.101 and 40 CFR 63.111) may comply with the emissions standards specified in 40 CFR 63.113(a)(2) and (c)(1). [i.e., uses a combustion device to reduce emissions of total organic HAP by 98 weight-percent or to a concentration of 20 parts per million by volume, whichever is less stringent; AND the gas stream exiting the combustion device is conveyed to a halogen reduction device, such as a scrubber, before it is discharged to the atmosphere]
    c. A Group 2 process vent (as defined in 40 CFR 63.101 and 40 CFR 63.111) may comply with the TRE standard specified in 40 CFR 63.112(d). [i.e., the TRE for the process vent is greater than 1.0 but less than or equal to 4.0]
    d. A Group 1 continuous front-end process vent (as defined in 40 CFR 63.482) may comply with the emissions standards specified in 40 CFR 63.485(s). [i.e., routes emissions of organic HAP to an internal combustion engine]
    e. A Group 2 continuous process vent (as defined in 40 CFR 63.1423) may comply with the TRE standard specified in 40 CFR 1425(c)(4)(ii). [i.e., the TRE for the process vent is greater than 4.0]
    f. Non-routine, only subject to SSM related regulation.
9. If applicable, select whether the process vent complies with a "percent reduction" or "concentration" based standard. If neither, select "neither".
10. Does the process vent ever operate "in ethylene oxide service"? (Yes/No) For purposes of this question, "in ethylene oxide service" means each batch and continuous process vent in a process that, when uncontrolled, contains a concentration of greater than or equal to 1 ppmv undiluted ethylene oxide, and when combined, the sum of all these process vents would emit uncontrolled ethylene oxide emissions greater than or equal to 5 lb/yr. If information exists that suggests ethylene oxide could be present in a batch or continuous process vent, then the batch or continuous process vent is considered to be "in ethylene oxide service" unless an analysis is performed as specified in §63.2492 to demonstrate that the batch or continuous process vent does not meet the definition of being "in ethylene oxide service". Examples of information that could suggest ethylene oxide could be present in a batch or continuous process vent, include calculations based on safety data sheets, material balances, process stoichiometry, or previous test results provided the results are still relevant to the current operating conditions. If yes:
    a. Select which of the following best describes the type of production line the process vent is associated with:
        i. An ethylene oxide production line that uses a silver catalyst and air as the oxidant for the process.
        ii. An ethylene oxide production line that uses a silver catalyst and pure oxygen as the oxidant for the process.

iii. A different type of ethylene oxide production line (specify).
iv. A production line where its primary purpose is not to produce ethylene oxide, but rather uses ethylene oxide as a reactant or intermediate to produce something else such as (select all that apply):
    1. Ethylene glycol.
    2. Ethylene glycol ethers.
    3. Ethanol amines.
    4. Ethoxylates.
    5. Diethylene glycol and triethylene glycol.
    6. Polyethylene glycols.
    7. Polyols.
    8. Other (specify).

b. Briefly describe/characterize the process vent "in ethylene oxide service." For example, the vent could be a re-absorber vent, regenerator vent, argon vent, poly kettle vent, or something else.

3.2 Atmospheric Vents (not considered to be a process vent under certain SOCMI related NESHAP and/or NSPS)

The intent of this section is to collect information on gas streams that release to the atmosphere and are not required to be controlled, and are not regulated by, the rules mentioned in Section 1.0 of this survey. This section is also not intended to collect information on Pressure Relief Devices (PRDs); specific questions regarding PRDs are in Section 3.3 of this survey.

For each atmospheric vent (not required to be controlled, and are not regulated by, the rules mentioned in Section 1.0 of this survey) at each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. A unique identifier for each atmospheric vent. Where possible, use the identifier in the facility's air permit.
2. The unique identifier of the chemical manufacturing process unit, elastomer product process unit, or polyether polyol manufacturing process unit associated with the atmospheric vent. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
3. The emission point ID(s) associated with the atmospheric vent. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
4. A brief description of the atmospheric vent. For example, the vent could be a gas stream that contains less than 0.005 weight percent total organic HAP at the point of discharge to the atmosphere, a gas stream that does not meet the criteria specified in §63.107(c) or (e), a gas stream exiting an analyzer, a bleeder valve that operates and releases to the atmosphere under low pressure, a maintenance vent, or something else.
5. The composition of the gas stream at the point of discharge to the atmosphere as follows:
    a. Name and CAS number of each HAP in the gas stream.
    b. Weight % of each HAP in the gas stream.
    c. Weight % of each non-HAP component in the gas stream.
6. Provide the following characteristics of the atmospheric vent:
    a. Volumetric flowrate of the gas stream at a standard temperature of 20°C:
        i. Standard cubic meters per minute.
        ii. Standard cubic meters per year.
        iii. Include an explanation of the method used for these estimates:
            1. Previous test results provided the tests are representative of current operating practices at the process unit.
            2. Bench-scale or pilot-scale test data representative of the process under representative operating conditions.
            3. Maximum value specified or implied within a permit limit applicable to the atmospheric vent.
            4. Design analysis based on accepted chemical engineering principles, measurable process parameters, or physical or chemical laws or properties.
            5. Stack test.
            6. Continuous parameter monitoring system.
            7. Other (specify).
    b. Net heating value of the gas stream (megajoules per standard cubic meter). Include an explanation of the method used for this estimate:

i. Previous test results provided the tests are representative of current operating practices at the process unit.
ii. Bench-scale or pilot-scale test data representative of the process under representative operating conditions.
iii. Maximum value specified or implied within a permit limit applicable to the atmospheric vent.
iv. Design analysis based on accepted chemical engineering principles, measurable process parameters, or physical or chemical laws or properties.
v. Stack test.
vi. Continuous parameter monitoring system.
vii. Other (specify).

c. Emission rate of Total Organic Compounds (TOC):
   i. Kilograms per hour (minus methane and ethane).
   ii. Kilograms per year (minus methane and ethane).
   iii. Include an explanation of the method used for these estimates:
      1. Engineering judgment.
      2. Material balance.
      3. Stack test.
      4. Continuous emission monitoring system.
      5. Manufacturer specification.
      6. EPA, state, or local agency emission factor.
      7. Other (specify).

d. Emission rate of total organic HAP:
   i. Kilogram per hour.
   ii. Kilogram per year.
   iii. Include an explanation of the method used for these estimates:
      1. Engineering judgment.
      2. Material balance.
      3. Stack test.
      4. Continuous emission monitoring system.
      5. Manufacturer specification.
      6. EPA, state, or local agency emission factor.
      7. Other (specify).

3.3 Pressure Relief Devices (PRDs)

1. Number of PRDs in organic HAP service at your facility (as defined by 40 CFR 63.161, if applicable; as defined by 40 CFR 63.191, if applicable; or as defined by 40 CFR 63.1423, if applicable).
    a. Number of these PRDs that vent to atmosphere.
    b. Number of these PRDs that vent to control or back into process.
    c. Number of these PRDs that discharged to the atmosphere in the past 5 years (2016-2020).
        i. Provide total duration of each event using calendar timestamps.
        ii. Provide reason for each event.
        iii. Estimate the total amount (pounds) of VOC released to the atmosphere during each event. Include an explanation of the method used for this estimate:
            1. Engineering judgment.
            2. Material balance.
            3. Stack test.
            4. Continuous emission monitoring system.
            5. Manufacturer specification.
            6. EPA, state, or local agency emission factor.
            7. Other (specify).
        iv. Estimate the total amount (pounds) of HAP released to the atmosphere during each event. Include an explanation of the method used for this estimate:
            1. Engineering judgment.
            2. Material balance.
            3. Stack test.
            4. Continuous emission monitoring system.
            5. Manufacturer specification.
            6. EPA, state, or local agency emission factor.
            7. Other (specify).
        v. During each event, was ethylene oxide released to the atmosphere? (Yes/No)
        vi. In a separate file, if available, provide total amount (pounds) of each speciated HAP released to the atmosphere during each event, and the method used to determine these emissions.
2. Number of PRDs at your facility NOT defined by 40 CFR 63.161, 40 CFR 63.191, or 40 CFR 63.1423.
    a. Number of these PRDs that vent to atmosphere.
    b. Number of these PRDs that vent to control or back into process.
    c. Number of these PRDs that discharged to the atmosphere in the past 5 years (2016-2020).
        i. Provide total duration of each event using calendar timestamps.
        ii. Provide reason for each event.
        iii. Estimate the total amount (pounds) of VOC released to the atmosphere during each event. Include an explanation of the method used for this estimate:
            1. Engineering judgment.
            2. Material balance.
            3. Stack test.

4. Continuous emission monitoring system.
5. Manufacturer specification.
6. EPA, state, or local agency emission factor.
7. Other (specify).

iv. Estimate the total amount (pounds) of HAP released to the atmosphere during each event. Include an explanation of the method used for this estimate:
1. Engineering judgment.
2. Material balance.
3. Stack test.
4. Continuous emission monitoring system.
5. Manufacturer specification.
6. EPA, state, or local agency emission factor.
7. Other (specify).

v. During each event, was ethylene oxide released to the atmosphere? (Yes/No)

vi. In a separate file, if available, provide total amount (pounds) of each speciated HAP released to the atmosphere during each event, and the method used to determine these emissions.

d. Briefly explain if any of these PRDs are regulated by any Federal air regulation and provide the citation for the rule.

3. Is your facility subject to:
   a. the EPA's Chemical Accident Prevention Provisions (40 CFR part 68)? (Yes/No)
   b. the Occupational Safety and Health Administration's (OSHA) Process Safety Management rule (29 CFR 1910.119)? (Yes/No)
4. Are you required to conduct root cause analysis and corrective action for certain PRD releases? If so, what rule requires you to do this?
5. Do you use a device(s) or a monitoring system that is capable of identifying releases from a PRD and recording the time and duration of each pressure release from a PRD? (Yes/No)
   a. If yes, what percentage of the number of PRDs in organic HAP service at your facility are equipped with this device(s)?
   b. Capital cost (optional)

Commented [JR4]: Potential CBI

4.0 Storage Vessels

4.1 Storage Vessel Characteristics and Design

For each storage vessel at each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. A unique identifier for each storage vessel. Where possible, use the identifier in the facility's air permit.
2. The unique identifier of the chemical manufacturing process unit, elastomer product process unit, or polyether polyol manufacturing process unit associated with the storage vessel. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
3. The emission point ID(s) associated with the storage vessel. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
4. Cite any applicable State and Local air regulations. Although not required, you may provide (if available) any information about your specific air permit conditions that are used to comply with each State or Local air regulation.
5. Vessel design (select the option that best fits):
    a. Fixed roof vessel vented to atmosphere.
    b. Fixed roof vessel vented to control device.
    c. Fixed roof vessel using vapor balancing.
    d. External floating roof.
    e. External floating roof with geodesic dome roof.
    f. Internal floating roof.
    g. Horizontal vessel (atmospheric or low pressure).
    h. High pressurized (>15 psig) sphere or bullet vessel.
    i. Other (specify).
6. Vessel operating pressure:
    a. Atmospheric.
    b. Low pressure (2.5 to 15 psig).
    c. High pressure (≥ 15 psig).
7. Select the NESHAP category that best describes each storage vessel:
    a. Table 5 to Subpart G of Part 63—Group 1 Storage Vessels at Existing Sources.
    b. Table 6 to Subpart G of Part 63—Group 1 Storage Vessels at New Sources.
    c. Neither Table 5 or 6 to Subpart G of Part 63, but considered Group 2 storage vessel under Subpart G of Part 63.
    d. Table 3 to Subpart U of Part 63—Group 1 Storage Vessels at Existing Affected Sources.
    e. Table 4 to Subpart U of Part 63—Group 1 Storage Vessels at New Sources.
    f. Neither Table 3 or 4 to Subpart U of Part 63, but considered Group 2 storage vessel under Subpart U of Part 63.
    g. Table 3 to Subpart PPP of Part 63—Group 1 Storage Vessels at Existing and New Affected Sources.
    h. Not Table 3 to Subpart PPP of Part 63, but considered Group 2 storage vessel under Subpart PPP of Part 63.
    i. None, does not meet any category described in the selections above.

8. Select the configuration that best describes how the storage vessel complies with the Federal air regulation(s) selected in previous question:
    a. Uses a fixed roof and an internal floating roof.
    b. Uses an external floating roof.
    c. Uses an external floating roof converted to an internal floating roof (i.e., fixed roof installed above external floating roof).
    d. Uses a closed vent system and control device (other than a flare).
    e. Uses a closed vent system and a flare.
    f. Routes emissions to a fuel gas system or to a process.
    g. Uses vapor balance.
    h. Group 2 storage vessel that is not part of an emissions average.
    i. Group 2 storage vessel that is part of an emissions average.
    j. Other (specify).
9. Vessel diameter (feet).
10. Vessel height (or length if horizontal) (feet).
11. Maximum liquid height (feet).
12. Vessel capacity (cubic feet).
13. Is the vessel heated? (Yes/No)
14. Is the vessel fully-insulated, partially-insulated, not-insulated?
15. Total throughput of all liquid stored in the vessel in 2017 (gallons).
16. Number of turnovers in vessel in 2017.
17. Identify how the vessel is filled:
    a. Submerged pipe.
    b. Splash loading.
    c. Bottom loading.
    d. Other (specify).
18. External shell color (choose best option):
    a. Aluminum/Specular
    b. Aluminum/Diffuse
    c. Aluminum/Mill finish, unpainted
    d. Beige/Cream
    e. Brown
    f. Black
    g. Gray/Light
    h. Gray/Medium
    i. Green/Dark
    j. Red/Primer
    k. Rust/Red Iron Oxide
    l. Tan
    m. White
19. External shell paint condition (choose best option):
    a. New
    b. Average
    c. Aged

20. For fixed roof vessels:
    a. Roof shape:
        i. Cone
        ii. Dome
    b. Roof color (choose best option):
        i. Aluminum/Specular
        ii. Aluminum/Diffuse
        iii. Aluminum/Mill finish, unpainted
        iv. Beige/Cream
        v. Brown
        vi. Black
        vii. Gray/Light
        viii. Gray/Medium
        ix. Green/Dark
        x. Red/Primer
        xi. Rust/Red Iron Oxide
        xii. Tan
        xiii. White
    c. Roof paint condition (choose best option):
        i. New
        ii. Average
        iii. Aged
    d. Is the roof vapor-tight? (Yes/No) [Enter "No" for bolted roofs or riveted roofs in which roof or shell plates are not vapor-tight.]
    e. Total number of vents on the vessel that are either open to the atmosphere or are designed to open to the atmosphere under low pressure. [This question is not intended to collect information on Pressure Relief Devices (PRDs); specific questions regarding PRDs are in Section 3.3 of this survey. For purposes of this question, a vent is considered any potential point of discharge (excluding releases due to fitting leaks, equipment leaks, and PRDs) from the vessel to the atmosphere, such as a conservation vent, eave vent, breather vent, or purge vent to the atmosphere, regardless of whether or not the vent is currently regulated by a rule.]
21. For floating roof vessels:
    a. Specify the number of deck fittings using the specific template provided with this survey.
    b. Select the most appropriate description of the vessel and floating roof rim seal type:
        i. Welded Tank, Mechanical Shoe Seal, Primary only
        ii. Welded Tank, Mechanical Shoe Seal, Shoe mounted Secondary
        iii. Welded Tank, Mechanical Shoe Seal, Rim-mounted secondary
        iv. Welded Tank, Liquid-mounted Seal, Primary Only
        v. Welded Tank, Liquid-mounted Seal, Weather Shield
        vi. Welded Tank, Liquid-mounted Seal, Rim-mounted Secondary
        vii. Welded Tank, Vapor-Mounted Seal, Primary only (most common)
        viii. Welded Tank, Vapor-Mounted Seal, Weather Shield
        ix. Welded Tank, Vapor-Mounted Seal, Rim-mounted secondary
        x. Riveted Tank, Mechanical Shoe Seal, Primary only

xi. Riveted Tank, Mechanical Shoe Seal, Shoe mounted Secondary
xii. Riveted Tank, Mechanical Shoe Seal, Rim-mounted secondary

c. Are rim seals tight-fitting (≤ 1/8" gaps) or average?
d. Is the deck welded or bolted?
e. Total length of deck seams (feet)
f. Number of 2017 roof landings.
g. Number of 2017 vessel emptying after roof landing.
h. Minimum floor to roof height at shell when landed (feet).
i. After the emptying operation is complete, describe the remaining liquid in the vessel:
    i. Full liquid heel [the remaining liquid covers the entire bottom of the vessel].
    ii. Partial liquid heel [leaves a heel of liquid in or near the sump].
    iii. Drain-dry [all of the standing liquid has been removed, including from the bottom of the sump].
j. Internal floating roof only:
    i. If known, effective column diameter (inches).
    ii. Total number of vents on the vessel that are either open to the atmosphere or are designed to open to the atmosphere under low pressure. [This question is not intended to collect information on Pressure Relief Devices (PRDs); specific questions regarding PRDs are in Section 3.3 of this survey. For purposes of this question, a vent is considered any potential point of discharge (excluding releases due to fitting leaks, equipment leaks, and PRDs) from the vessel to the atmosphere, such as a conservation vent, eave vent, breather vent, or purge vent to the atmosphere, regardless of whether or not the vent is currently regulated by a rule.]
    iii. Does the facility conduct uncontrolled inert purges on the storage vessel? (Yes/No) If yes, briefly describe the situation an uncontrolled inert purge is used and how often.
k. External floating roof only:
    i. Steel peripheral pontoon deck or steel double deck?

22. For vessels that use a closed vent system and a control device, specify the number of periods of planned routine maintenance of the control device in the past 7 years (2014-2020) during which the control device was unable to meet an otherwise applicable emission standard.
    a. Provide total duration of each event using calendar timestamps.
    b. Provide reason for each event.
23. Does the storage vessel ever operate "in ethylene oxide service"? (Yes/No) For purposes of this question, "in ethylene oxide service" means storage tanks of any capacity and vapor pressure storing a liquid that is at least 0.1 percent by weight of ethylene oxide. If knowledge exists that suggests ethylene oxide could be present in a storage tank, then the storage tank is considered to be "in ethylene oxide service" unless sampling and analysis is performed as specified in §63.2492 to demonstrate that the storage tank does not meet the definition of being "in ethylene oxide service". Examples of information that could suggest ethylene oxide could be present in a storage tank, include calculations based on safety data sheets, material balances, process stoichiometry, or previous test results provided the results are still relevant to the current operating conditions.

4.2 Materials Stored

For each storage vessel at each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. Specify the name(s) of the HAP-containing material stored in the vessel in 2017.
2. Specify the storage tank ID(s) storing the material in 2017.
3. Specify whether the material contains HAP listed on:
    a. Table 2 to Subpart F of Part 63? (Yes/No)
    b. Table 5 to Subpart U of Part 63? (Yes/No)
    c. Table 4 to Subpart PPP of Part 63? (Yes/No)
    d. None of the above.
4. Material type, select the following that most closely characterizes the HAP-containing material that is stored:
    a. Raw material.
    b. Product.
    c. Intermediate.
5. Temperature of material when stored (degrees Fahrenheit).
6. Total vapor pressure of material when stored at storage temperature (kilopascals).
7. Maximum true vapor pressure of the total organic HAP in material when stored at storage temperature (kilopascals).
8. Composition of constituents in vessel:
    a. Average molecular weight of stored liquid (pounds per pound mole)
    b. Average molecular weight of vapor space (pounds per pound mole)
    c. Density of stored liquid (pounds per cubic feet)
    d. Density of vapor phase (pounds per cubic feet)
    e. Liquid phase:
        i. Name of each non-HAP constituent in stored liquid.
        ii. Weight % of each non-HAP constituent in the stored liquid.
        iii. Mole fraction of each non-HAP constituent in the stored liquid
        iv. Name and CAS number of each HAP constituent in stored liquid.
        v. Weight % of each HAP constituent in the stored liquid.
        vi. Mole fraction of each HAP constituent in the stored liquid.
    f. Vapor phase:
        i. Name of each non-HAP constituent in the vapor space.
        ii. Weight % of each non-HAP constituent in the vapor space.
        iii. Mole fraction of each non-HAP constituent in the vapor space.
        iv. Name and CAS number of each HAP constituent in the vapor space.
        v. Weight % of each HAP constituent in the vapor space.
        vi. Mole fraction of each HAP constituent in the vapor space.
    g. Basis for compositions:
        i. MSDS.
        ii. Engineering judgement.
        iii. Sampling. If sampling, specify method used.
        iv. Other (specify).

Commented [JR5]: Maybe CBI but I'm unsure. if there may be some proprietary blend or product in the tank?

4.3 Degassing

For each storage vessel that has been degassed *{Degassing is the removal and displacement of vapors from the storage vessel using fresh air or nitrogen, usually done for cleaning, maintenance, inspection, and repair.}*, provide the following:

1. For the last degassing event:
    a. Date of event (calendar year).
    b. Was the vessel cleaned during the last gassing event? (Yes/No)
    c. Control used during the event:
        i. None, vessel vented to atmosphere.
        ii. Portable internal combustion engine.
        iii. Portable thermal oxidizer.
        iv. Portable condensation system.
        v. Portable flare.
        vi. Permanent onsite control device (provide control device ID).
        vii. Other (specify).
2. Date of the next expected degassing event (calendar year).
3. Cite all State and Local air regulations that apply to degassing events. Although not required as part of this question, you may provide (if available) any information about your specific air permit conditions that are used to comply with each State or Local air regulation.
4. If not already specified in the State and Local air regulation, provide a description of the criteria, if any, that is used before degassing a storage vessel (e.g., vent streams ≤10-percent of the LEL, vent streams ≤ 5 psig, no more than 50 lb of air contaminant allowed to be released to the atmosphere).

5.0 Transfer Racks

5.1 Regulations

1. Provide a unique identifier for each transfer rack that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit at your facility. Where possible, use the identifier in the facility's air permit. [For the purposes of this survey, a transfer rack means the system used to load organic liquids into tank trucks and railcars at a single geographic site. It includes all loading arms, pumps, meters, shutoff valves, relief valves, and other piping and equipment necessary for the transfer operation. Transfer equipment that are physically separate (i.e., do not share common piping, valves, and other equipment) are considered to be separate transfer racks.]
2. The unique identifier of the chemical manufacturing process unit, elastomer product process unit, or polyether polyol manufacturing process unit associated with the transfer rack. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
3. The emission point ID(s) associated with the transfer rack. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
4. Select the Federal air regulations that apply to each transfer rack (select all that apply):
    a. 40 CFR part 63, subparts F through I (i.e., the Hazardous Organic NESHAP). If you select this option, then also:
        i. Specify if the transfer rack meets the description specified in 40 CFR 63.100(f)(9) such that it only transfer liquids containing organic HAP as impurities.
        ii. Specify if the transfer rack meets the description specified in 40 CFR 63.100(f)(10) such that it vapor balances during all loading operations.
        iii. If the transfer rack does not meet the description specified in 40 CFR 63.100(f)(9) or (10), then:
            1. Specify the 2017 rack weighted average HAP partial pressure of the transfer rack.
            2. Submit all 2017 analyses required by 40 CFR 63.130(e).
            3. Specify whether the transfer rack have halogenated emission streams? (Yes/No) If yes, then select the compliance option being used:
                a. 40 CFR 63.126(d)(1)(i)
                b. 40 CFR 63.126(d)(1)(ii)
                c. 40 CFR 63.126(d)(2)
    b. 40 CFR part 63, subpart PPP. If you select this option, then also specify whether the transfer rack:
        i. Meets the description specified in 40 CFR 63.1420(c)(10) as it only transfer liquids containing HAP as impurities.
        ii. Meets the description specified in 40 CFR 63.1420(c)(11) as it vapor balances during all loading operations.
    c. Other (specify).
    d. None.
5. Cite all State and Local air regulations that apply to the transfer rack. Although not required as part of this question, you may provide (if available) any information about your specific air permit conditions that are used to comply with each State or Local air regulation.

6. Select the configuration (all that apply) that best describes how the transfer rack complies with Federal air regulation(s) (if a Federal air regulation applies):
    a. Routes emissions to a fuel gas system.
    b. Routes emissions to a process.
    c. Routes emissions through a closed-vent system to a non-flare control device.
    d. Routes emissions through a closed-vent system to a flare.
    e. Routes emissions through a vapor collection system (as defined in 40 CFR 63.111) to a non-flare control device.
    f. Routes emissions through a vapor collection system (as defined in 40 CFR 63.111) to a flare.
    g. Uses submerged loading.
    h. Uses bottom loading.
    i. Uses vapor balance used during all loading operations at this loading rack.
    j. Group 2 transfer rack.
    k. Other (specify).

5.2 Transfer Rack Design

For each transfer rack, provide the following:

1. Transfer rack services (select all that apply):
    a. Tank/tank truck loading.
    b. Rail car loading.
2. Number of loading arms and/or hoses at transfer rack.
3. Maximum throughput capacity of transfer rack (gallons per day).
4. Does the transfer rack only transfer liquids containing HAP as impurities? (Yes/No)
5. Specify the total number of hours in 2017 HAP-containing material (exclude material containing HAP only as impurities) was loaded into tank trucks and railcars using the transfer rack.
6. Does the transfer rack ever operate "in ethylene oxide service"? (Yes/No) For purposes of this question, "in ethylene oxide service" means racks that transfer any liquid that is at least 0.1 percent by weight of ethylene oxide.

5.3 Materials Transferred

For each HAP-containing material that is loaded into tank trucks or railcars in 2017 using a transfer rack at your facility:

1. Specify the name of the material of the HAP-containing material that is loaded.
2. Specify the transfer rack(s) used to load the specific material. [Use the same transfer rack IDs used in Section 5.1 of this survey.] [Please separate each ID by a semi-colon.]
3. Specify the 2017 throughput of the specific material through each transfer rack used in 2017 (gallons per day).
4. Did you answer the "material stored" questions about this material in Section 4.2 of this survey? (Yes/No)

Commented [JR6]: Potential CBI

a. If yes, you must use the same material name that you used to respond to Section 4.0 of this survey to respond to question 1 of this section, and then you do not have to answer any other questions in this section.
b. If no, you must continue to answer all other questions in this section.

5. Specify whether the material contains HAP listed on:
   a. Table 2 to Subpart F of Part 63? (Yes/No)
   b. Table 5 to Subpart U of Part 63? (Yes/No)
   c. Table 4 to Subpart PPP of Part 63? (Yes/No)
   d. None of the above.
6. Material type, select the following that most closely characterizes the HAP-containing material that is stored:
   a. Raw material.
   b. Product.
   c. Intermediate.
7. Temperature of material when loaded (degrees Fahrenheit).
8. Total vapor pressure of material when loaded at average loading temperature (kilopascals).
9. Maximum true vapor pressure of the total organic HAP in material when loaded at average loading temperature (kilopascals).
10. Composition of constituents:
    a. Average molecular weight of liquid (pounds per pound mole)
    b. Average molecular weight of vapor space (pounds per pound mole)
    c. Density of liquid (pounds per cubic feet)
    d. Density of vapor phase (pounds per cubic feet)
    e. Liquid phase:
       i. Name of each non-HAP constituent in liquid.
       ii. Weight % of each non-HAP constituent in the liquid.
       iii. Mole fraction of each non-HAP constituent in the liquid
       iv. Name and CAS number of each HAP constituent in liquid.
       v. Weight % of each HAP constituent in the liquid.
       vi. Mole fraction of each HAP constituent in the liquid.
    f. Vapor phase:
       i. Name of each non-HAP constituent in the vapor space.
       ii. Weight % of each non-HAP constituent in the vapor space.
       iii. Mole fraction of each non-HAP constituent in the vapor space.
       iv. Name and CAS number of each HAP constituent in the vapor space.
       v. Weight % of each HAP constituent in the vapor space.
       vi. Mole fraction of each HAP constituent in the vapor space.
    g. Basis for compositions:
       i. MSDS.
       ii. Engineering judgement.
       iii. Sampling. If sampling, specify method used.
       iv. Other (specify).

Commented [JR7]: Maybe CBI but I'm unsure. if there may be some proprietary blend or product being transferred?

6.0 Wastewater

6.1 Regulations and Other Details

1. Provide a unique identifier for each wastewater stream (no matter whether the wastewater stream is regulated by a Federal air regulation or not) that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit at your facility. Where possible, use the identifier in the facility's air permit.
2. The unique identifier of the chemical manufacturing process unit, elastomer product process unit, or polyether polyol manufacturing process unit associated with the wastewater stream. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
3. The emission point ID(s) associated with the wastewater stream. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
4. Select the Federal air regulations that apply to each wastewater stream (select all that apply):
    a. 40 CFR part 63, subparts F through I (i.e., the Hazardous Organic NESHAP).
    b. 40 CFR part 63, subpart U.
    c. 40 CFR part 63, subpart PPP.
    d. Other (specify).
    e. None.
5. Cite all State and Local air regulations that apply to the wastewater stream. Although not required as part of this question, you may provide (if available) any information about your specific air permit conditions that are used to comply with each State or Local air regulation.
6. Select the configuration that best describes how the wastewater stream complies with Federal air regulation(s) (select the first option if a Federal air regulation does not apply):
    a. Federal air regulation does not apply to this wastewater stream. If you select this answer, then provide the following additional information:
        i. Flow rate (liters per minute):
            1. Average.
            2. Maximum.
            3. Basis for determining flow rate values.
        ii. Flow-weighted annual average total HAP concentration (parts per million by weight):
            1. Minimum.
            2. Maximum.
            3. Average.
            4. Basis for determining flow-weighted annual average concentrations.
        iii. Name and CAS number of each HAP in the wastewater stream.
        iv. Weight % of each HAP in the wastewater stream.
        v. Specify control technology, and/or management or work practices used (if any) to reduce HAP emissions from the wastewater stream.
    b. Reduces, by removal or destruction, the total concentration of regulated HAP to a level less than 50 ppmw.
    c. Reduces, by removal or destruction, individual regulated HAP to a level less than 10 ppmw.

d. Uses a design steam stripper which meets the design criteria specified in §63.138(d).
e. Uses a waste management unit or treatment process to reduce by at least 99 percent, by removal or destruction, the total mass flow rate of regulated HAP.
f. Uses a waste management unit or treatment process to reduce, by removal or destruction, the mass flow rate of each regulated HAP by at least the fraction removed (Fr) values specified by the regulation.
g. Uses a waste management unit or treatment process to achieve the required mass removal (RMR) of regulated HAP specified by the regulation.
h. Uses a biological treatment unit that achieves a RMR of at least 95 percent for all regulated HAP as specified by the regulation.
i. Treats the wastewater or residual in a permitted RCRA hazardous waste incinerator, a RCRA permitted process heater or boiler, or discharges it to a properly permitted underground injection well.
j. Uses a 1 megagram per year total source mass flow rate exemption option.
k. Group 2 wastewater stream.
l. Discharges to onsite or offsite wastewater treatment or hazardous waste treatment.
m. Uses a decanter, steam stripper, thin film evaporator, or distillation unit to separate the water phase from the organic phase(s).
n. Hard pipes the entire wastewater stream to onsite treatment as a hazardous waste, or hard pipes the entire wastewater stream to a point of transfer to onsite or offsite hazardous waste treatment.
o. Other (specify).

7. Does the wastewater stream ever operate "in ethylene oxide service"? (Yes/No) For purposes of this question, "in ethylene oxide service" means the wastewater contains at least 0.1 percent by weight of ethylene oxide.

6.2 Wastewater Management Unit Design

For each on-site wastewater management unit that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit at your facility, provide the following:

1. A unique identifier for each wastewater tank (as defined in 40 CFR 63.111). Where possible, use the identifier in the facility's air permit. For each wastewater tank:
    a. Is the wastewater tank controlled using a fixed roof? (Yes/No)
    b. Is the wastewater tank being controlled using a fixed roof and a closed-vent system routed to a control device? (Yes/No)
    c. Is the wastewater tank controlled using an external floating roof? (Yes/No)
    d. Is the wastewater tank controlled using a fixed roof with an internal floating roof? (Yes/No)
    e. Is the wastewater tank controlled using something else? (Yes/No, if Yes specify)
2. A unique identifier for each surface impoundment (as defined in 40 CFR 63.111). Where possible, use the identifier in the facility's air permit. For each surface impoundment:
    a. Is the surface impoundment controlled using a cover with a closed-vent system that routes to a control device? (Yes/No)

b. Is the surface impoundment controlled using a floating flexible membrane cover? (Yes/No)

3. Estimated number of containers (as defined in 40 CFR 63.111) used in 2017.
4. A unique identifier for each individual drain system (as defined in 40 CFR 63.111). Where possible, use the identifier in the facility's air permit. For each individual drain system:
    a. Is the individual drain system controlled using a cover, and not vented? (Yes/No)
    b. Is the individual drain system controlled using a cover, and vented to a process? (Yes/No)
    c. Is the individual drain system controlled using a cover, and vented through a closed vent system to a control device? (Yes/No)
    d. Is the individual drain system controlled using water seal controls or a tightly fitting cap or plug for drains, tightly fitting solid covers for junction boxes, and covers or enclosures for sewer lines? (Yes/No)
5. A unique identifier for each oil-water separator (as defined in 40 CFR 63.111). Where possible, use the identifier in the facility's air permit. For each oil-water separator:
    a. Is the oil-water separator controlled using a fixed roof and a closed vent system routed to a control device? (Yes/No)
    b. Is the oil-water separator controlled using a floating roof? (Yes/No)
    c. Is the oil-water separator controlled using something else? (Yes/No, if Yes specify)

7.0 Heat Exchange Systems

7.1 Heat Exchange System Details

For each heat exchange system that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. Provide a unique identifier for each heat exchange system. Where possible, use the identifier in the facility's air permit.
2. The unique identifier of the chemical manufacturing process unit, elastomer product process unit, or polyether polyol manufacturing process unit associated with the heat exchange system. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
3. The emission point ID(s) associated with the heat exchange system. [Use the same ID(s) you used in Section 2.0 of this survey.] [Please separate each ID by a semi-colon.]
4. Heat exchange system design:
    a. Once-through cooling water system.
    b. Natural draft cooling tower.
    c. Induced draft (fans at outlet) cooling tower.
    d. Forced draft (fans for inlet air) cooling tower.
    e. Other (specify).
5. Cooling water recirculation rate or discharge rate for once-through systems (gallons per minute).
6. Does the heat exchange system meet the requirements for exemption listed in:
    a. §63.104(a)(1)? (Yes/No)
    b. §63.104(a)(2)? (Yes/No)
    c. §63.104(a)(3)? (Yes/No)
    d. §63.104(a)(4)? (Yes/No)
    e. §63.104(a)(5)? (Yes/No)
    f. §63.104(a)(6)? (Yes/No)
7. Provide the total number of heat exchangers serviced by the heat exchange system (including heat exchangers servicing all manufacturing processes at your facility if they share the heat exchange system that services chemical manufacturing process units, elastomer product process units, and/or polyether polyol manufacturing process units).
8. Provide the total number of heat exchangers serviced by the heat exchange system that services:
    a. Chemical manufacturing process units subject to 40 CFR part 63, subparts F through H
    b. Elastomer product process units subject to 40 CFR part 63, subpart U
    c. Polyether polyol manufacturing process units subject to 40 CFR part 63, subpart PPP
9. Does water from any operations at the facility get disposed of through (or injected into) the heat exchange system? (Yes/No) If yes:
    a. Describe where the water comes from (if possible, use the same terminology used on the PFDs submitted with this survey).
    b. Is the flow intermittent or continuous?

i. If intermittent, estimate how many gallons per month?
ii. If continuous, estimate how many gallons per minute?

c. Is there a potential for HAP to be in this water? (Yes/No) If yes, in a separate file, provide worse case speciated HAP (name and CAS number) flow-weighted annual average concentrations, or the annual arithmetic average concentrations (parts per million by weight) and the basis for determining the values.

10. Does the heat exchange system ever operate "in ethylene oxide service"? (Yes/No) For purposes of this question, "in ethylene oxide service" means heat exchange systems that contain any liquid that is at least 0.1 percent by weight of ethylene oxide.

7.2 NPDES

For each once-through cooling water system, provide the following:

1. Description of the outfall point (discharge point) of the cooling water.
2. Is the outfall point (discharge point) shared with other outfalls from the facility (e.g., wastewater treatment outfall or stormwater outfall)? (Yes/No) If yes, provide a description of these outfalls.
3. Is the heat exchanger subject to a National Pollutant Discharge Elimination System (NPDES) permit? (Yes/No) If yes:
    a. Do either of the following apply? [§63.104(a)(3)]
        i. Allowable discharge of 1 part per million by volume or less above influent concentration? (Yes/No)
        ii. Allowable discharge of 10 percent or less above influent concentration? (Yes/No)
    b. Does the permit require monitoring for detection of leaks of process fluid into cooling water? (Yes/No) If yes, select all that apply: [§63.104(a)(4)]
        i. Permit specifies normal range of the parameter or condition.
        ii. Permit requires quarterly or more frequent monitoring.
        iii. Permit requires reporting and correction of leaks.
    c. Submit a copy of the NPDES permit.

7.3 Additives

For each heat exchange system, provide the following:

1. Are any gas/chemical additives injected in cooling water? (Yes/No) If yes:
    a. List the name and CAS number of any HAP contained in the additives.
    b. Provide the addition rate and units (e.g., lb/min/lb/gal cooling water, etc.) of each HAP because of additives injected in cooling water.

7.4 Regulations

For each heat exchange system, provide the following:

1. Cite all State and Local air regulations that apply to the heat exchange system. Although not required as part of this question, you may provide (if available) any information about your specific air permit conditions that are used to comply with each State or Local air regulation.

2. Select the Federal air regulations that apply to each heat exchange system (select the option that best fits):
    a. 40 CFR 63.104. (Yes/No)
    b. 40 CFR 63.104 via 40 CFR 63.502(b). (Yes/No)
    c. 40 CFR 63.104 via 40 CFR 63.1435. (Yes/No)
    d. 40 CFR 63.104 via 40 CFR 63.11499. (Yes/No)
    e. Other (specify).
    f. None.
3. Select the monitoring option according to 40 CFR 63.104(b) that the facility has chosen for detecting leaks in each heat exchange system:
    a. Monitor for leaks by entire heat exchange system.
        i. Current frequency of monitoring:
            1. Hourly
            2. Daily
            3. Weekly
            4. Monthly.
            5. Quarterly.
            6. Annually.
            7. Other (specify).
        ii. If not using a surrogate indicator of leaks, describe the method used to determine the concentration of the monitored substance in the cooling water (i.e., any EPA-approved method listed in 40 CFR 136 as long as the method is sensitive to concentrations as low as 10 parts per million and the same method is used for both entrance and exit samples. Alternative methods may be used upon approval by the Administrator.).
    b. Monitor for leaks by a combination of heat exchangers.
        i. Current frequency of monitoring:
            1. Hourly
            2. Daily
            3. Weekly
            4. Monthly.
            5. Quarterly.
            6. Annually.
            7. Other (specify).
        ii. If not using a surrogate indicator of leaks, describe the method used to determine the concentration of the monitored substance in the cooling water (i.e., any EPA-approved method listed in 40 CFR 136 as long as the method is sensitive to concentrations as low as 10 parts per million and the same method is used for both entrance and exit samples. Alternative methods may be used upon approval by the Administrator.).
        iii. Identify each group of heat exchangers and provide the number of heat exchangers in each group.
    c. Monitor for leaks by sampling at the inlet and outlet of each heat exchanger.
        i. Current frequency of monitoring:
            1. Hourly
            2. Daily

3. Weekly
4. Monthly.
5. Quarterly.
6. Annually.
7. Other (specify).

ii. If not using a surrogate indicator of leaks, describe the method used to determine the concentration of the monitored substance in the cooling water (i.e., any EPA-approved method listed in 40 CFR 136 as long as the method is sensitive to concentrations as low as 10 parts per million and the same method is used for both entrance and exit samples. Alternative methods may be used upon approval by the Administrator.).

iii. Identify each heat exchanger.

d. Monitor for leaks using a surrogate indicator of leaks.

i. Select what surrogate indicator is being used:

1. Ion specific electrode monitoring.
2. pH.
3. Conductivity.
4. Other (specify).

ii. Submit the monitoring plan required by 40 CFR 63.104(c)(1) through (c)(3).

7.5 Leaks

For each heat exchange system, provide the following:

1. Is it possible that a "strippable" organic HAP could leak into the cooling water of the system and subsequently be emitted to the atmosphere through a cooling tower? (Yes/No)
2. Identify each detected leak in the last 5 years (2016 through 2020) by providing:
   a. Date detected.
   b. Date repaired.
   c. Days to repair
   d. Reason for delay (for each repair taking longer than 45 calendar days):
      i. The leaking equipment was isolated from the process.
      ii. The repair was technically infeasible without a shutdown, and the shutdown was expected within the next 2 months.
      iii. The repair was technically infeasible without a shutdown, and the shutdown for repair would cause greater emissions than the potential emissions from delaying repair.
      iv. The repair was technically infeasible without a shutdown, and the necessary equipment, parts or personnel were not available.
      v. Other (specify).
   e. For each leak, was ethylene oxide released into the atmosphere? (Yes/No)
   f. In a separate file, if available, provide total amount (pounds) of each speciated HAP released to the atmosphere due to the leak, and the method used to determine these emissions.

8.0 Flares

8.1 Flare Type

For each flare that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. Type of flare:
    a. Elevated flare. *{An elevated flare is composed of a system that first collects waste gases and passes them through a flare stack which is essentially a hollow pipe; combustion takes place at the top of the flare stack or flare tip which is comprised of the burners and a system to mix the air and fuel.}*
    b. Ground level flare with an elevated stack for release of effluent gases. *{A ground flare is composed of a system where the flare tip and combustion zone are at the ground level.}*
    c. Ground level flare without an elevated stack for release of effluent gases.
    d. Other (specify).
2. Flare assist type:
    a. Unassisted.
    b. Steam assisted. *{Steam assisted means any flare which adds any steam to the flare stack or flare tip for purposes including, but not limited to, protecting the design of the flare tip, promoting turbulence for mixing, or inducing air into the flame.}*
    c. Air assisted. *{Air assisted means any flare which adds any assist air to the flare stack or flare tip for purposes including, but not limited to, protecting the design of the flare tip, promoting turbulence for mixing, or inducing air into the flame.}*
    d. Pressure assisted. *{Pressure assisted means any flare which uses a high pressure drop burner tip to enhance atomization and fuel-to-air mixing.}*
    e. Pressure and steam assisted.
    f. Other (specify).
3. If pressure assisted, does the flare meet the following definition of a "pressure-assisted multi-point flare"? (Yes/No) [A "pressure-assisted multi-point flare" means a flare system consisting of multiple flare burners in staged arrays whereby the vent stream pressure is used to promote mixing and smokeless operation at the flare burner tips. Pressure-assisted multi-point flares are designed for smokeless operation at velocities up to Mach = 1 conditions (i.e., sonic conditions), can be elevated or at ground level, and typically use cross-lighting for flame propagation to combust any flare vent gases sent to a particular stage of flare burners.]
4. If "pressure-assisted multi-point flare", does the facility operate the flare under an approved alternative means of emission limitation? (Yes/No) If yes, provide a copy of the approved AMEL.

8.2 Specifications

For each flare that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. Maximum flare vent gas flow rate capacity (standard cubic feet per hour and pounds per hour) disaggregated into:
    a. Smokeless capacity.
    b. Hydraulic load capacity.
2. Diameter of flare (feet).
3. Flare release height (feet).
4. Continuous pilot flame:
    a. Number of pilots.
    b. Does the flare have a pilot re-ignition system? (Yes/No).
        i. Automatic or manual re-ignition?
5. Unobstructed cross sectional area of flare tip (feet) [if unassisted, steam assisted, or air assisted].

8.3 Operation

For each flare that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. Specify the actual hours operation of the flare for 2017: *{use best available data, and group the hours into the following categories}*
    a. Routine or normal operation.
    b. Intermittent:
        i. Startup.
        ii. Shutdown.
        iii. Upsets.
    c. Standby (i.e., sweep or purge gas only with no regulated material going to the flare).
    d. Other (specify).
2. Number of visible emissions/smoking events in the past 7 years (2014-2020).
    a. Provide total duration of each event using calendar timestamps.
    b. Provide reason for each event.
3. Number of maximum permitted velocity exceedances in the past 7 years (2014-2020).
    a. Provide total duration of each exceedance using calendar timestamps.
    b. Provide reason for each exceedance.

8.4 Reduction Measures

For each flare that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. Flare reduction measures (select all that apply):
    a. Flare gas recovery system, but not designed to recover 100 percent of flare gas during normal operations.
    b. Flare gas recovery system designated to recover 100 percent of flare gas during normal operations.
    c. Root cause and corrective action analysis for flare events exceeding a set flow rate level.
    d. Other management practice or work practice to reduce HAP emissions (specify).

8.5 Monitoring Equipment

For each flare that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. Identify any monitoring equipment installed on the flare header (select all that apply):
    a. Flow meter (to measure flare vent gas flow rate).
        i. Type/model/manufacturer (optional).
    b. Gas chromatograph (to measure the composition of flare vent gas).
        i. Type/model/manufacturer (optional).
        ii. List each compound the gas chromatograph monitors.
        iii. Capital cost (optional).
    c. BTU analyzer (to measure heat content of flare vent gas).
        i. Type/model/manufacturer (optional).
        ii. Capital cost (optional).
    d. Canister sampling system (to measure the composition and/or heat content of flare vent gas).
    e. Other (specify).
2. For each steam assisted flare:
    a. Monitoring equipment installed to manage flow rate of assist steam:
        i. Flow meter, manifold, and valve instrumentation.
        ii. Manual valve setting.
        iii. Other (specify).
    b. How fine tuned can the facility control the assist steam flow rate?
        i. Within 5 percent accuracy.
        ii. Within 10 percent accuracy.
        iii. Other (specify).
    c. Capital cost (optional).
3. For each air assisted flare:
    a. Monitoring equipment installed to manage flow rate of assist air (select all that apply):
        i. Hi/low settings on blower.
        ii. Damper.
        iii. Variable fan drive.
        iv. Other (specify).
    b. How fine tuned can the facility control the assist steam flow rate?
        i. Within 5 percent accuracy.
        ii. Within 10 percent accuracy.
        iii. Other (specify).
    c. Capital cost (optional).

Commented [JR8]: Potential CBI

Commented [JR9]: Potential CBI

Commented [JR10]: Potential CBI

Commented [JR11]: Potential CBI

8.6 Regulations

For each flare that is associated with each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. Is the flare directly subject, or will directly be subject to in the future, to any of the following rules?[3]
    a. Refinery NESHAP at §63.670? (Yes/No)
    b. Ethylene Production NESHAP at §63.1103(e)(4)? (Yes/No)
    c. Organic Liquid Distribution NESHAP at §63.2380? (Yes/No)
    d. Miscellaneous Organic NESHAP at §63.2450(e)(5)? (Yes/No)
2. Cite any applicable State and Local air regulations. Although not required as part of this question, you may provide (if available) any information about your specific air permit conditions that are used to comply with each State or Local air regulation.

[3] For purposes of this question, the facility is "directly" subject to the rule if it meets the applicability requirements of the rule. The facility is not "directly" subject to a rule just because a different rule (for which the facility is subject to according to applicability) references portions of the rule. In other words, the facility is not directly subject to Rule-B if the facility complies with a portion of Rule-B just because Rule-A requires the facility to comply with that portion of Rule-B; instead, in this example, the facility is directly subject to Rule-A.

9.0 Equipment Leaks

9.1 Imaging Device

1. Do you own or have ready access to an optical or thermal imaging device for detecting equipment leaks? (Yes/No) If yes:
    a. Provide the manufacturer and model number.
    b. Which of the following best describes the use of the imaging device by the facility? (Select all that apply.)
        i. At the frequency required by a Federal or other air regulation in order to demonstrate compliance *{if selected, specify the regulation and provide the rule citation that requires use of the imaging device}*.
        ii. To voluntarily check for leaks on a routine basis (quarterly or more frequently).
        iii. To voluntarily check for leaks on an occasional basis (less frequently than quarterly).
        iv. To voluntarily check for leaks following non-routine operations.
        v. Other (specify).

9.2 Regulations

For each chemical manufacturing process unit, elastomer product process unit, and polyether polyol manufacturing process unit, provide the following:

1. Select the Federal air regulations the facility is complying with for equipment leaks (select the option that best fits):
    a. 40 CFR 63, subpart H. (Yes/No)
    b. 40 CFR 63, subpart H via 40 CFR 63.502(a). (Yes/No)
    c. 40 CFR 63, subpart H via 40 CFR 63.1434(a). (Yes/No)
    d. Other (specify).
    e. None.
2. Do you use 40 CFR 63.160(b) and/or 40 CFR 63.160(c) to comply with other 40 CFR part 60 and/or 40 CFR part 61 equipment leak provisions? (Yes/No) If yes, what other 40 CFR part 60 and/or 40 CFR part 61 equipment leak rules would your facility be subject to if you did not use 40 CFR 63.160(b) and/or 40 CFR 63.160(c)?
3. Cite any applicable State, Local, or other air regulation the facility is complying with for equipment leaks, including any consent decrees. Although not required as part of this question, you may provide (if available) any information about your specific air permit conditions that are used to comply with each State or Local air regulation.

9.3 Equipment Counts and Equipment Leaks

1. Select each type of equipment servicing your facility.
    a. Pumps in light liquid service.
    b. Pumps in heavy liquid service.
    c. Valves in gas and vapor service (or in gas service).

d. Valves in light liquid service.
e. Valves in heavy liquid service.
f. Connectors in gas and vapor service (or in gas service).
g. Connectors in light liquid service.
h. Connectors in heavy liquid service.
i. Open-ended valves or lines (including those with caps, blind flanges, plugs, or second valves).
j. Compressors.
k. Instrumentation systems.
l. Sampling connection systems.
m. Pressure relief valves in gas and vapor service (or in gas service) that vent to atmosphere.
n. Pressure relief valves in gas and vapor service (or in gas service) routed to a control device or process.
o. Pressure relief valves in liquid service routed to an on-site treatment system, process, or drain system.
p. Pressure relief valves in liquid service *not* routed to an on-site treatment system, process, or drain system.
q. Agitators in gas and vapor service and light liquid service.
r. Agitators in heavy liquid service.
s. Surge control vessels and bottoms receivers.
t. Other. *{Includes any other fugitive emissions source not already provided that is monitored similar to equipment. Specify the types of fugitive emissions sources.}*

2. For each type of equipment "in ethylene oxide service" at your facility,[4] provide the following:
   a. Number of pieces of equipment. *{If no specific count is available, provide best estimate}*
   b. Number of pieces of equipment monitored. *{Do not include unsafe or difficult-to-monitor equipment in this count}*
   c. Number of leaks detected in 2017.
   d. Number of leaks repaired in 2017.
   e. Number of times delay of repair was invoked in 2017.
3. For each type of equipment NOT "in ethylene oxide service" at your facility,[1] provide the following:
   a. Number of pieces of equipment. *{If no specific count is available, provide best estimate}*
   b. Number of pieces of equipment monitored. *{Do not include unsafe or difficult-to-monitor equipment in this count}*
   c. Number of leaks detected in 2017.

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[4] For purposes of this question, "in ethylene oxide service" means the any equipment that contains or contacts a fluid (liquid or gas) that is at least 0.1 percent by weight of ethylene oxide. If information exists that suggests ethylene oxide could be present in equipment, the equipment is considered to be "in ethylene oxide service" unless sampling and analysis is performed as specified in §63.2492 to demonstrate that the equipment does not meet the definition of being "in ethylene oxide service". Examples of information that could suggest ethylene oxide could be present in equipment, include calculations based on safety data sheets, material balances, process stoichiometry, or previous test results provided the results are still relevant to the current operating conditions.]

d. Number of leaks repaired in 2017.
e. Number of times delay of repair was invoked in 2017.

4. For each type of equipment "in ethylene oxide service" at your facility,[1] provide the following:
    a. Monitoring frequency (select all that apply):
        i. No monitoring is performed.
        ii. No set monitoring interval.
        iii. Less frequently than annually (including skip periods) (Specify).
        iv. Annually.
        v. Semiannually.
        vi. Quarterly.
        vii. Monthly.
        viii. Biweekly.
        ix. Weekly or more frequently.
        x. Other (Specify)
    b. Monitoring method (select all that apply):
        i. Instrument monitoring (e.g., handheld analyzer).
        ii. Sensory monitoring.
        iii. Other (specify).
    c. Leak definition (parts per million by volume) (select all that apply for calendar year 2017).
        i. No leak definition (no monitoring is performed).
        ii. Detection by sensory monitoring.
        iii. 10,000 parts per million by volume.
        iv. 5,000 parts per million by volume.
        v. 2,000 parts per million by volume.
        vi. 1,000 parts per million by volume.
        vii. 500 parts per million by volume.
        viii. Less than 500 parts per million by volume.
5. For each type of equipment NOT "in ethylene oxide service" at your facility,[1] provide the following:
    a. Monitoring frequency (select all that apply):
        i. No monitoring is performed.
        ii. No set monitoring interval.
        iii. Less frequently than annually (including skip periods) (Specify).
        iv. Annually.
        v. Semiannually.
        vi. Quarterly.
        vii. Monthly.
        viii. Biweekly.
        ix. Weekly or more frequently.
        x. Other (Specify)
    b. Monitoring method (select all that apply):
        i. Instrument monitoring (e.g., handheld analyzer).
        ii. Sensory monitoring.
        iii. Other (specify).

c. Leak definition (parts per million by volume) (select all that apply for calendar year 2017).
    i. No leak definition (no monitoring is performed).
    ii. Detection by sensory monitoring.
    iii. 10,000 parts per million by volume.
    iv. 5,000 parts per million by volume.
    v. 2,000 parts per million by volume.
    vi. 1,000 parts per million by volume.
    vii. 500 parts per million by volume.
    viii. Less than 500 parts per million by volume.

9.4 Stream Compositions and Emissions

1. For every liquid, gas, and/or vapor stream in HAP service that contains at least one piece of equipment servicing your facility, provide a unique identifier for the stream.
2. Apportion the equipment counts from Section 10.3 by stream.
3. Provide composition of each stream as follows:
    a. Name and CAS number of HAP in each stream.
    b. Weight % of each HAP in each stream.
4. If available, provide total amount (pounds) of HAP released to the atmosphere in 2017 by each stream (due to all combined leaks from the stream), and the method used to determine these emissions.

Commented [JR12]: Maybe CBI but I'm unsure. if there may be some proprietary blend in the stream?

9.5 Equipment Leak Repair Schedule

1. Describe the leak repair schedule used at your facility. If different types of equipment are subject to different repair schedules, identify each equipment type and applicable repair schedule. Include the time period for first attempt at repair and full repair.

10.0 Startup, Shutdown, and Malfunction

1. Provide a copy of the facility Startup, Shutdown, and Malfunction Plan (SSMP), if required to maintain one.

10.1 Planned Shutdown

1. For planned equipment openings associated with maintenance activities at your facility:
    a. Cite all State and Local air regulations that apply to equipment openings associated with maintenance activities. Although not required as part of this question, you may provide (if available) any information about your specific air permit conditions that are used to comply with each State or Local air regulation.
    b. If not already specified in the State and Local air regulation, provide a description of the criteria, if any, that is used before opening equipment for maintenance activities (e.g., vent streams ≤10-percent of the LEL, vent streams ≤ 5 psig, no more than 50 lb of air contaminant allowed to be released to the atmosphere).

The following remaining questions in this section encompass entire chemical manufacturing process units, elastomer product process units, and polyether polyol manufacturing process units. For the purposes of this survey, a planned shutdown event means a routine shutdown, scheduled in advance, for preventative maintenance, which are typically scheduled and budgeted for multiple months in advance.

2. Frequency of planned shutdown events (years).
3. Average amount of time required to shutdown during a planned event (hours).
4. Describe steps, work-practices, processes, or techniques the facility uses to minimize emissions during planned shutdown events.
5. Have you ever collected emissions data during a planned shutdown event? (Yes/No) If yes, explain the type of emissions data collected.
6. Do you expect emissions to be higher, lower, or unchanged during planned shutdown events compared to normal operations? Provide an explanation for your answer.
7. For the last planned shutdown provide:
    a. Date of last planned shutdown.
    b. Amount of time required to shutdown during the event (hours).
    c. Provide a description of the last planned shutdown.
    d. Identify each HAP released (name and CAS number) during the event, the amount released (pounds), and a basis for the amount released.
    e. Identify each point source and fugitive source emission point associated with the event (use emission point IDs used in this survey).

10.2 Unplanned Shutdown

The following questions encompass entire chemical manufacturing process units, elastomer product process units, and polyether polyol manufacturing process units. For the purposes of this survey, an unplanned shutdown event is due to external events outside the control of the operator (i.e., natural disaster or power failure).

1. Average frequency of unplanned shutdown events (years).
2. Average amount of time required to shutdown during an unplanned event (hours).
3. Have you ever collected emissions data during an unplanned shutdown event? (Yes/No) If yes, explain the type of emissions data collected.
4. Do you expect emissions to be higher, lower, or unchanged during unplanned shutdown events compared to normal operations? Provide an explanation for your answer.
5. For the last unplanned shutdown provide:
    a. Date of last unplanned shutdown.
    b. Amount of time required to shutdown during the event (hours).
    c. Provide a description of the last unplanned shutdown.
    d. Identify each HAP released (name and CAS number) during the event, the amount released (pounds), and a basis for the amount released.
    e. Identify each point source and fugitive source emission point associated with the event (use emission point IDs used in this survey).

10.3 Startup

The following questions encompass entire chemical manufacturing process units, elastomer product process units, and polyether polyol manufacturing process units.

1. Are there process differences between startup events and normal operations? (Yes/No) If yes:
    a. Provide an explanation of the differences.
    b. Do the differences present increased safety risks to workers or testers? (Provide an explanation.)
2. Have you ever collected emissions data during a startup event? (Yes/No) If yes, explain the type of emissions data collected.
3. Do you expect emissions to be higher, lower, or unchanged during startup events compared to normal operations? Provide an explanation for your answer.
4. For the last startup provide:
    a. Date of last startup.
    b. Amount of time required to startup during the event (hours).
    c. Provide a description of the last startup.
    d. Identify each HAP released (name and CAS number) during the event, the amount released (pounds), and a basis for the amount released.
    e. Identify each point source and fugitive source emission point associated with the event (use emission point IDs used in this survey).

10.4 Malfunctions

1. Identify each malfunction event during the last 5 years (2016-2020) where emissions exceeded normal emissions, normal controls were bypassed, or the effectiveness of the normal control was reduced and provide the following:
    a. Date of event (mm/dd/yyyy).
    b. Duration of the event (hours).
    c. Description of the event.
    d. Identify each point source and fugitive source emission point associated with each malfunction (use emission point IDs used in this survey).

e. For each HAP released during the event, provide the following:
    i. HAP name and CAS Number.
    ii. Amount of HAP released during the event (pounds).
    iii. Description of method used to estimate the amount of HAP that was released during the event.

11.0 Ambient, Fenceline, Area, and Safety Monitors

1. Have you done any monitoring for HAP emissions detection? (Yes/No) If yes, for each monitoring event, provide information on the type of monitor, standard operating procedures including quality assurance/quality control (QA/QC), the location of the monitor on a plot plan, the detection level and set point of the monitor, and actual monitored value.
2. Indicate which monitors have produced alarms and provide records of when each alarm has occurred.
3. Provide a detailed description of the procedure for alarm investigation.
4. Provide records of all upset/reportable releases of HAP from the facility from 2016 through 2020 discovered by ambient, fenceline, or area and safety monitoring. Include date, incident description, and quantity of releases reported. Provide the basis for the emission estimates.
5. Provide a description of personnel exposure monitoring program. Provide specific details on how initial and periodic determinations of employee 8-hour time weighted average exposure for each job classification in each work area are performed. Provide a description of methods that are used to detect the presence or release of the monitored HAP in the work area (such as personal exposure monitoring, continuous monitoring devices, etc.) and provide actual readings/results of these measurements from 2016 through 2020.